Specifications HDM3065

DM3065 accuracy specifications: ± (% of reading + % of range)[1].

Range [2]/frequency		24 hours [3] T_{CAL} ± 1 °C	90 days T_{CAL} ± 5 °C	1 year T_{CAL} ± 5°C	2 years T_{CAL} ± 5 °C	Temperature coefficient/°C [4]
DC voltage						
100 mV		0.0030 + 0.0030	0.0040 + 0.0035	0.0050 + 0.0035	0.0065 + 0.0035	0.0005 + 0.0005
1 V		0.0020 + 0.0006	0.0030 + 0.0007	0.0040 + 0.0007	0.0055 + 0.0007	0.0005 + 0.0001
10 V		0.0015 + 0.0004	0.0020 + 0.0005	0.0035 + 0.0005	0.0050 + 0.0005	0.0005 + 0.0001
100 V		0.0020 + 0.0006	0.0035 + 0.0006	0.0045 + 0.0006	0.0060 + 0.0006	0.0005 + 0.0001
1000 V		0.0020 + 0.0006	0.0035 + 0.0010	0.0045 + 0.0010	0.0060 + 0.0010	0.0005 + 0.0001
True RMS AC voltage [2, 5, 6]						
100 mV, 1 V, 10 V, 100 V, and 750 V ranges						
5 Hz to 10 Hz		0.35 + 0.02	0.35 + 0.03	0.35 + 0.03	0.35 + 0.03	0.035 + 0.003
10 Hz to 20 kHz		0.04 + 0.02	0.05 + 0.03	0.06 + 0.03	0.07 + 0.03	0.005 + 0.003
20 kHz to 50 kHz		0.10 + 0.04	0.11 + 0.05	0.12 + 0.05	0.13 + 0.05	0.011 + 0.005
50 kHz to 100 kHz		0.55 + 0.08	0.60 + 0.08	0.60 + 0.08	0.60 + 0.08	0.060 + 0.008
100 kHz to 300 kHz		4.00 + 0.50	4.00 + 0.50	4.00 + 0.50	4.00 + 0.50	0.200 + 0.020
Resistance [7]	**Test current**					
100 Ω	1 mA	0.0030 + 0.0030	0.008 + 0.004	0.010 + 0.004	0.012 + 0.004	0.0006 + 0.0005
1 kΩ	1 mA	0.0020 + 0.0005	0.008 + 0.001	0.010 + 0.001	0.012 + 0.001	0.0006 + 0.0001
10 kΩ	100 µA	0.0020 + 0.0005	0.008 + 0.001	0.010 + 0.001	0.012 + 0.001	0.0006 + 0.0001
100 kΩ	10 µA	0.0020 + 0.0005	0.008 + 0.001	0.010 + 0.001	0.012 + 0.001	0.0006 + 0.0001
1 MΩ	5 µA	0.002 + 0.001	0.008 + 0.001	0.010 + 0.001	0.012 + 0.001	0.0010 + 0.0002
10 MΩ	500 nA	0.015 + 0.001	0.020 + 0.001	0.040 + 0.001	0.060 + 0.001	0.0030 + 0.0004
100 MΩ	500 nA || 10 MΩ	0.300 + 0.010	0.800 + 0.010	0.800 + 0.010	0.800 + 0.010	0.1500 + 0.0002
DC current	**Burden voltage**					
100 µA	< 0.03 V	0.010 + 0.020	0.040 + 0.025	0.050 + 0.025	0.060 + 0.025	0.0020 + 0.0030
1 mA	< 0.3 V	0.007 + 0.006	0.030 + 0.006	0.050 + 0.006	0.060 + 0.006	0.0020 + 0.0005
10 mA	< 0.05 V	0.007 + 0.020	0.030 + 0.020	0.050 + 0.020	0.060 + 0.020	0.0020 + 0.0020
100 mA	< 0.5 V	0.010 + 0.004	0.030 + 0.005	0.050 + 0.005	0.060 + 0.005	0.0020 + 0.0005
1 A	< 0.7 V	0.050 + 0.006	0.080 + 0.010	0.100 + 0.010	0.120 + 0.010	0.0050 + 0.0010
3 A	< 2.0 V	0.180 + 0.020	0.200 + 0.020	0.200 + 0.020	0.230 + 0.020	0.0050 + 0.0020
10 A [8]	< 0.5 V	0.050 + 0.010	0.120 + 0.010	0.120 + 0.010	0.150 + 0.010	0.0050 + 0.0010
Capacitance [15]						
1.0000 nF		0.50 + 0.50	0.50 + 0.50	0.50 + 0.50	0.50 + 0.50	0.05 + 0.05
10.000 nF		0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.05 + 0.01
100.00 nF		0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.05 + 0.01
1.0000 µF		0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.05 + 0.01
10.000 µF		0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.05 + 0.01
100.00 µF		0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.40 + 0.10	0.05 + 0.01

Specifications HDM3065 (Continued)

Range [2]/frequency		24 hours [3] T_{CAL} ± 1 °C	90 days T_{CAL} ± 5 °C	1 year T_{CAL} ± 5 °C	Temperature coefficient/°C [4]
True RMS AC current [2, 6, 9]					
Range	**Freq**				
100.0000uA	3Hz–5Hz	1.10 + 0.06	1.10 + 0.06	1.10 + 0.06	0.200 + 0.006
	5Hz–10Hz	0.35 + 0.06	0.35 + 0.06	0.35 + 0.06	0.100 + 0.006
	10Hz–5kHz	0.15 + 0.06	0.15 + 0.06	0.15 + 0.06	0.015 + 0.006
	5kHz–10kHz	0.35 + 0.70	0.35 + 0.70	0.35 + 0.70	0.030 + 0.006
1.000000mA	3Hz–5Hz	1.00 + 0.04	1.00 + 0.04	1.00 + 0.04	0.100 + 0.006
	5Hz–10Hz	0.30 + 0.04	0.30 + 0.04	0.30 + 0.04	0.035 + 0.006
	10Hz–5kHz	0.12 + 0.04	0.12 + 0.04	0.12 + 0.04	0.015 + 0.006
	5kHz–10kHz	0.20 + 0.25	0.20 + 0.25	0.20 + 0.25	0.030 + 0.006
10.00000mA	3Hz–5Hz	1.10 + 0.06	1.10 + 0.06	1.10 + 0.06	0.200 + 0.006
	5Hz–10Hz	0.35 + 0.06	0.35 + 0.06	0.35 + 0.06	0.100 + 0.006
	10Hz–5kHz	0.15 + 0.06	0.15 + 0.06	0.15+ 0.06	0.015 + 0.006
	5kHz–10kHz	0.35 + 0.70	0.35 + 0.70	0.35 + 0.70	0.030 + 0.006
100.0000mA	3Hz–5Hz	1.00 + 0.04	1.00 + 0.04	1.00 + 0.04	0.100 + 0.006
	5Hz–10Hz	0.30 + 0.04	0.30 + 0.04	0.30 + 0.04	0.035 + 0.006
	10Hz–5kHz	0.10 + 0.04	0.10 + 0.04	0.10 + 0.04	0.015 + 0.006
	5kHz–10kHz	0.20 + 0.25	0.20 + 0.25	0.20 + 0.25	0.030 + 0.006
1–3.000000A	3Hz–5Hz	1.10 + 0.06	1.10 + 0.06	1.10 + 0.06	0.100 + 0.006
	5Hz–10Hz	0.35 + 0.06	0.35 + 0.06	0.35 + 0.06	0.035 + 0.006
	10Hz–5kHz	0.15 + 0.06	0.15 + 0.06	0.15 + 0.06	0.015 + 0.006
	5kHz–10kHz	0.35 + 0.70	0.35 + 0.70	0.35 + 0.70	0.030 + 0.006
10.00000A	3Hz–5Hz	1.10 + 0.08	1.10 + 0.10	1.10 + 0.10	0.100 + 0.008
	5Hz–10Hz	0.35 + 0.08	0.35 + 0.10	0.35 + 0.10	0.035 + 0.008
	10Hz–10kHz	0.15 + 0.08	0.15 + 0.10	0.15 + 0.10	0.015 + 0.008

Continuity					
1 kΩ	0.002 + 0.030	0.008 + 0.030	0.010 + 0.030	0.012 + 0.030	0.0010 + 0.0020
Diode test [10]					
5 V	0.002 + 0.030	0.008 + 0.030	0.010 + 0.030	0.012 + 0.030	0.0010 + 0.0020
DC ratio (typ)					
	(normalized input accuracy) + (normalized reference accuracy)				
Temperature [11]					
PT100 (DIN/ IEC 751)	Probe accuracy + 0.05 °C				
5 kΩ thermistor	Probe accuracy + 0.1 °C				
Frequency: specification ± (% of reading) [12, 13]					
100 mV, 1 V, 10 V, 100 V, and 750 V ranges [14]					
10 to 100 Hz	0.030	0.030	0.030	0.030	0.035
100 Hz to 1 kHz	0.003	0.008	0.010	0.010	0.015
1 to 300 kHz	0.002	0.006	0.010	0.010	0.015
Square wave [15]	0.001	0.006	0.010	0.010	0.015
Additional gate time errors ±(% of reading) [13]					
Frequency	**1 second**	**0.1 second**	**0.01 second**		
3 Hz to 40 Hz	0	0.200	0.200		
40 Hz to 100 Hz	0	0.060	0.200		
100 Hz to 1 kHz	0	0.020	0.200		
1 kHz to 300 kHz	0	0.004	0.030		
Square wave [15]	0	0	0		

Specifications HDM3065 (Continued)

1. For DC: Specifications are for 60-minute warm-up, aperture of 10 or 100 NPLC, and auto zero on. For AC: Specifications are for 60-minute warm-up, slow AC filter, sine wave.
2. 20% over range on all ranges, except 1,000 V DCV, 750 ACV, 10 A DC, 3 A AC, 10 A AC, and diode test.
3. Relative to calibration standards.
4. Add this for each °C outside TCAL ± 5 °C.
5. Specifications are for sinewave input > 5% of range . 750 ACV range limited to 8 x 10 7 Volt–Hz.
   For inputs within 1% and 5% of range and 50 kHz, add 0.1% of range additional error. For 50kHz to 100kHz, add 0.13% of range additional error.
6. Low-frequency performance: three filter settings are available: 3 Hz, 20 Hz, 200 Hz. Frequencies greater than these filter settings are specified with no additional errors.
7. Specifications are for 4-wire ohms function or 2-wire ohms using math null for offset. Without math null, add 0.2 Ω additional error in 2-wire ohms function.
8. The 10 A range is only available on a separate front-panel connector. Add 2 mA base per amp or inputs > 5 A rms.
9. Specifications are for sinewave input > 5% of range .
   For inputs within 1% to 5% of range, add 0.1% of range additional error.
10. Specifications are for the voltage measured at the input terminals. The 1 mA test current is typical. Variation in the current source will create some variation in the voltage drop across a diode junction.
11. Actual measurement range and probe errors will be limited by the selected probe. Probe accuracy adder includes all measurement and ITS-90 temperature conversion errors. PT100 Ro settable to 100 Ω ± 5 Ω to remove the initial probe error.
12. Specifications are for 60-minute warm-up and sine wave input unless stated otherwise. Specifications are for 1-second gate time .
13. Applies to sine and square inputs ≥ 100 mV. For 10 mV to < 100 mV inputs, multiply % of reading error x10.
14. Amplitude 10% to 120% of range and less than 750 ACV.
15. Square wave input specified for 10 to 300 kHz.